

REMARKS:

Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks. Claims 1-5, 9-40 and 64-68 are pending in the application. Claims 15-40 have been withdrawn from consideration. No claims have been allowed. Claims 1, 64 and 68 are independent. With entry of this amendment, claims 1, 9, 64 and 68 are amended, and claims 7, 8, 12, 65 and 66 are canceled without prejudice.

Entry of Amendment after Final Rejection

Because the amendments herein are drawn from language in previously appearing claims, they may be properly entered after a final rejection (see, e.g., MPEP § 714.19).

Election/Restrictions

Claims 15-40 were earlier found to be drawn to a nonelected species and, therefore, were withdrawn from further consideration. Applicants believe, as is discussed below, that claim 1 is allowable in its present form.

Because generic claim 1 is now allowable, and claims 15-40 depend from claim 1, claims 15-40 and are also allowable. Therefore, Applicants respectfully request that the Examiner withdraw the species and subspecies election requirements on claims 15-40, and continue to consider those claims for allowance.

Rejection under 35 U.S.C. § 112

Claims 1-5, 7-14 and 64-68 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. The rejections of claims 7, 8, 12, 65 and 66 are moot in view of the cancellation of these claims without prejudice.

The Action at page 3 states that the feature “distinguishing spatially overlapping nucleic acid probe signals in the biological specimen” in claims 1, 64 and 68 is not supported by the specification. The Action further argues

the above cited feature is more broadly drawn to distinguishing spatially overlapping nucleic acid probe signals which does not require the use of a confocal microscope. As such, the above described amendment to the instant claims represents New Matter.

Independent claim 1 has been amended to recite “obtaining, *by use of a confocal microscope*, a plurality of successive images of the region of interest. . . .” Support for the amendment may be found in the original specification at, for example, page 5, lines 1-8, and in original claim 12. Independent claims 64 and 68 have been similarly amended. For at least these reasons, independent claims 1, 64 and 68, as well as their respective dependent claims 4, 5, 9-11, 13, 14 and 65, are allowable under 35 U.S.C. § 112. The rejection should be withdrawn, and such action is respectfully requested.

Patentability of Claims 1-5, 10, 11, 13, 14 and 64 over Garini under § 102(e)

The Action rejects claims 1-5, 10, 11, 13, 14 and 64 under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. No. 5,817,462 to Garini et al. (Garini). The Action at 4 appears to also reject claim 68 over Garini. In any case, this rejection is respectfully traversed. For a 102(e) rejection to be proper, the cited art must show each and every element as set forth in a claim. (See MPEP § 2131.01.) However, the cited art does not so show.

Claim 1

For example, amended claim 1 is directed toward:

A computer-implemented method for counting nucleic acid probe signals in a region of interest in a biological specimen, the method comprising:
obtaining, by use of a confocal microscope, a plurality of successive images of the region of interest, *wherein the successive images are optical sections of the region of interest at different depths of the biological specimen. . . .*

Support for the amendments may be found in the original specification at, for example, page 4, lines 10-12, and in original claims 7, 8 and 12.

Garini does not teach or suggest such a method. As noted in the Action at 9 (discussing a § 103 rejection of other claims), Garini

does not fairly teach the claimed invention wherein successive images are . . . at different depths of the biological specimen. . . .

The Action at 10 argues that U.S. Pat. No. 5,784,162 to Cabib et al. (Cabib) overcomes the deficiencies of Garini with respect to this feature. The Action notes that Cabib describes:

For the future development of spectral imaging, the use of aldehyde-fixed cells which will

enable to *focus on specific depths of the cell* and thus to markedly enhance the possibilities of this technique, is suggested.

See col. 39, lines 5-9 (emphasis added).

Applicants respectfully disagree that Cabib overcomes the deficiencies of Garini and that Cabib describes “optical sections of the region of interest at different depths of the biological specimen.” One of ordinary skill in the art could not be expected to arrive at the claimed feature from the mere mention of “specific depths of the cell,” because the context of Cabib would not have led one of ordinary skill in the art to infer from this passage the obtaining of *plural* images from *different* depths of a specimen. Cabib deals with spectral images and describes

a spectral image is a sequence of images representing the intensity of *the same two-dimensional plane (i.e., the sample)* at different wavelengths.

See col. 20, lines 16-18. While Cabib analyzes images in three dimensions, only two of those dimensions are spatial, with the third being a spectral dimension. See, e.g., col. 19, lines 28-30. Instead of “obtaining successive images . . . of the region of interest at different depths of the biological specimen,” Cabib focuses on

providing a method allowing spectroscopic measurement and data to be *collected for every point (i.e., pixel) of a sample independently and simultaneously*.

See col. 12, lines 57-60 (emphasis added). See also Abstract and Figs. 1-3. With this focus in mind, it stands to reason that if Cabib really did teach obtaining “optical sections of the region of interest at different depths of the biological specimen,” Cabib would also disclose a method for simultaneously collecting data at multiple depths. However, no such method is taught or suggested by Cabib or Garini. For at least these reasons, Cabib does not teach or suggest obtaining plural images from different depths of a specimen. Claim 1 is therefore allowable over a Garini-Cabib combination.

Claims 2-5, 10, 11, 13 and 14 depend from claim 1. These claims are therefore allowable for the same reasons as claim 1, as well as for the unique combinations of features recited therein. The rejection should be withdrawn, and such action is respectfully requested.

Claim 64

Amended claim 64 is directed toward:

An automated system for counting nucleic acid probe signals in a region of interest in a biological specimen, the system comprising:

means for obtaining, by use of a confocal microscope, a plurality of successive images of the region of interest, *wherein the successive images are optical sections of the region of*

interest at different depths of the biological specimen. . . .

Support for the amendments may be found in the original specification at, for example, page 5, lines 1-8, at page 4, lines 10-12, and in original claims 7, 8 and 12.

As explained above, Garini does not teach or suggest a method involving “optical sections of the region of interest at different depths of the biological specimen.” For at least this reason, claim 64 is allowable over Garini. The rejection should be withdrawn, and such action is respectfully requested.

Claim 68

Amended claim 68 is directed toward:

One or more computer-readable media having computer-executable instructions for performing a method for counting nucleic acid probe signals in a region of interest in a biological specimen, the method comprising:

obtaining a plurality of successive images of the region of interest obtained via confocal microscopy, *wherein the successive images are optical sections of the region of interest at different depths of the biological specimen. . . .*

Support for the amendments may be found in the original specification at, for example, page 5, lines 1-8, at page 4, lines 10-12, and in original claims 7, 8 and 12.

As explained above, Garini does not teach or suggest a method involving “optical sections of the region of interest at different depths of the biological specimen.” For at least this reason, claim 68 is allowable over Garini. The rejection should be withdrawn, and such action is respectfully requested.

Patentability of Claims 1-5, 7-14 and 64-68 over Garini in view of Cabib under § 103

The Action rejects claims 1-5, 7-14 and 64-68 under 35 U.S.C. § 103(a) as unpatentable over Garini in view Cabib. This rejection is respectfully traversed. The rejections of claims 7, 8, 12, 65 and 66 are moot in view of the cancellation of these claims without prejudice.

As noted above, Garini does not teach or suggest the method of claim 1, the system of claim 64, or the computer-readable media of claim 68, and Cabib does not overcome the deficiencies of Garini. Claims 2-5, 9-11, 13 and 14 depend from claim 1, and claim 67 describes computer-readable media with instructions for performing the method of claim 9. Accordingly, no combination of Garini or Cabib teaches or suggests the features of these claims. Claims 64 and 68 feature language similar to that of claim 1 and are likewise novel and non-obvious in view of Garini and Cabib. The rejection should be withdrawn, and such action is respectfully requested.

Request for Interview

If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to issuance of the next Office Action in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution. Applicants submit the foregoing formal Amendment so that the Examiner may fully evaluate Applicants' position, thereby enabling the interview to be more focused.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

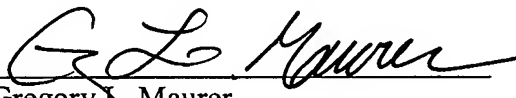
Conclusion

The claims in their present form should now be allowable. Such action is respectfully requested.

Respectfully submitted,

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